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ABSTRACT

Trend-demographic enrollment projections recently have been modified by new assumptions regarding the economic returns of education, the growth of the so-called "Learning Society," and changing patterns of student preference. The net result is that institutions are confronted with a wide range of competing projections of the level of future enrollments. Regional variations, the "career-orientation" of many students, differing prospects of different types of institutions, and the timeliness of enrollment data complicate the projection further. Presented are enrollment projection strategies that accommodate both short-term fluctuations and long-term uncertainty. These strategies combine demographic, economic, regional variation, and student-choice variables. They tend to be probabilistic, frequently revised, and more detailed than efforts in the past. The major goal of these strategies is to enable institutions to make decisions that will maintain institutional options, a necessary outcome under conditions of uncertainty. (Author)

ENROLLMENT PROJECTION STRATEGIES IN AN UNCERTAIN ENVIRONMENT

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ABSTRACT

Enrollment fluctuations in the early seventies have stimulated a reassessment of the enrollment potentials of higher education. As a result, future enrollments were projected on the basis of demographic trends, and not just past enrollments. However, these trend-demographic projections recently have been modified by new assumptions regarding the economic returns of education, the growth of the so-called "Learning Society," and changing patterns of student preference. The net result is that institutions are confronted with a wide range of competing projections of the level of future enrollments.

Regional variations, the "career-orientation" of many students, differing prospects of different types of institutions, and the timeliness of enrollment data complicate projection further. This paper presents enrollment projection strategies that accommodate both short-term fluctuations and long-term uncertainty. These strategies combine demographic, economic, regional variation, and student choice variables. They tend to be probabilistic, frequently revised, and more detailed than efforts in the past. The major goal of these strategies is to enable institutions to make decisions that will maintain institutional options, a necessary outcome under conditions of uncertainty.

During the decade of the seventies, higher education has encountered considerable fluctuation in enrollments. Not only have events in the past five years differed from the sixties, they have yet to chart clear patterns for the future. Fluctuation, the failure of new trends to emerge clearly, and a series of new and conflicting images of the future of postsecondary education have created a basic uncertainty about what future enrollments will be. In spite of this uncertainty, however, institutional researchers and planners are being called upon to project future enrollments. These projections are important because they will guide today's educational decisions, which in turn will help to determine tomorrow's educational environment.

This paper has three objectives. First, it outlines some of the factors that have contributed to current uncertainty in enrollments and portrays how that uncertainty has been reflected in recent enrollment projections. Second, it identifies complicating factors that institutions must consider in projecting enrollments under uncertainty. Third, it provides a series of strategies for enrollment projection in a climate of change and uncertainty. Modified to fit each particular environment, these strategies will help institutions to cope with uncertain futures.

But can enrollment projections provide accurate predictions for the purpose of planning and decision-making? Their record has been mixed, at best. The national enrollment projection studies of the sixties were based on trends in enrollment of the fifties and consistently underestimated the enrollments of the period. On the other hand, many of the projections of the early seventies were based on the trends of the sixties and overestimated the actual enrollments that transpired.

Alerted by the poor track record of enrollment projections based purely on historical trends in actual enrollments, a number of studies in the early seventies

began to project enrollments based on the rate of attendance and size of the 18-24 year old cohort group. The result has been the now familiar "go-stop-go" enrollment curve popularized by the Carnegie Commission. The earliest of the Carnegie projections of this type appeared in 1971 and posited increasing enrollments until the 1980's, followed by plateauing or declining enrollments for a period, and then increasing enrollments from 1990 onward.

Conditions since 1971 have caused revisions in these projections. Continuing declines in the birthrate have caused Bureau of the Census population projections that have been increasingly pessimistic. College attendance rates have declined for many traditional students. On the other hand, rates of attendance of non-traditional and adult learners have climbed, although it is difficult to say by how much due to the difficulty in identifying these learners.

The relative economic returns of education and the spectre of the under-employment and even unemployment of college graduates have led to these factors being incorporated into enrollment projections. Just as this line of argument was being accepted, however, educators were confronted in the fall of 1975 with the largest enrollment increase since the mid-sixties. While a portion of this growth may be attributed to the continued growth of the 18-24 year old age cohort, the remainder is due to other factors and has not been explained definitively. Many believe that due to poor economic conditions, many young people enrolled in college rather than compete for the few existing jobs. The fall of 1975 reminded educators that the relationship between economics and college attendance, while very real, is not as simple-minded as some had suggested.

In response to the high degree of uncertainty concerning future enrollments, a wide variety of enrollment studies have been developed. These studies utilize some combination of demographic trends and projections, the effects of economic saturation, changes in student attendance patterns, and assumptions about certain

key educational conditions in the future. The outcomes of these studies vary considerably, reflecting the factors utilized, the assumptions made, and the methodologies of the projectors.

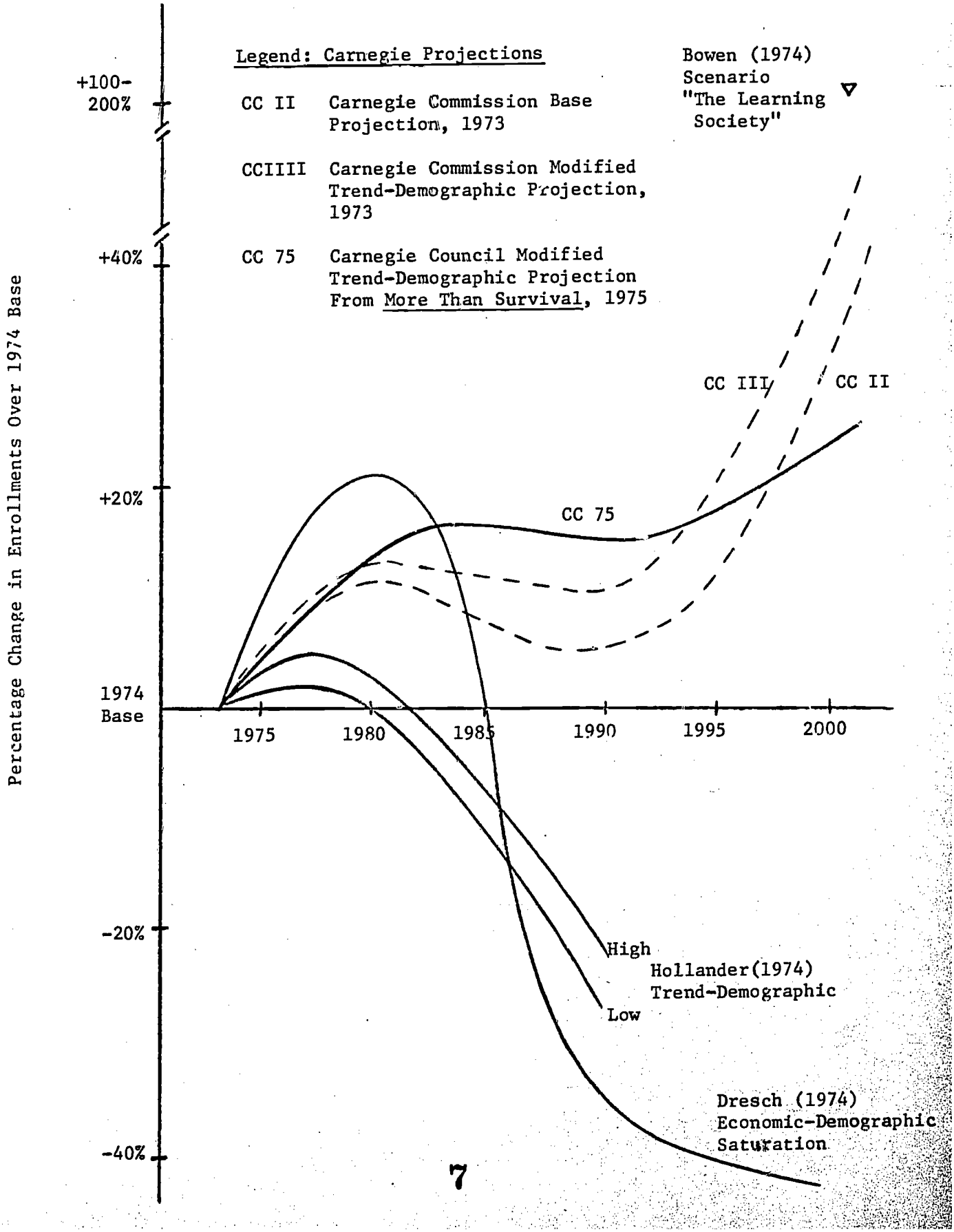
Figure 1 compares a sample of these projections. The vertical axis represents the percentage change in enrollments projected, based on actual 1974 enrollments. Although several of these projections deal with different definitions of enrollment in different settings, the use of the "percentage change" device enables comparison.

The three Carnegie Commission projections are presented as examples of the trend-demographic approach applied in a national setting. The 1973 Carnegie Base Projection predicts enrollments on the basis of Series E population projections and an assumption of a slightly decreasing high school graduation and college attendance rate (Carnegie Commission, 1973[a]). The Carnegie Update modifies the demography-driven base projection on the basis of the assumed attendance of larger numbers of nontraditional students espoused by the Carnegie report, Toward the Learning Society (Carnegie Commission,1973[b]). The magnitude of the difference between these two projections illustrates the relative impact of the modification. The third projection by Carnegie is the most recent, appearing in the Carnegie Council's More Than Survival. It is based on Series F (now called Series III by the Census Bureau) population estimates and assumptions that enrollment rates for many types of students will increase. This projection foresees rising enrollments through 1985, a weak decline through 1995, and modest growth thereafter.

The projection by Hollander (1974) projects a high and low figure for full-time undergraduates in the state of New York. While essentially a trend-demographic study, it isolates the effect of demography on traditional undergraduate enrollments and also alludes to the impact of regional variation. If Hollander's projections are realized, the institutions in New York State will undergo a 20

Figure 1

VARIATIONS IN ENROLLMENT PROJECTIONS



percent or greater decline in traditional undergraduate enrollments by 1990.

Dresch (1974) has been one of the leaders in attempting to link college attendance to economic rewards. His model suggests that continued high levels of college attendance will create a condition of "economic saturation." As a result, the declines in enrollments that may occur after 1980 may be far more severe than those projected by Carnegie. Moreover, the posited declines may continue even after 1990, albeit at a diminished rate.

Although not portrayed on this graph, Freeman and Hollomon (1975) have investigated the impact that the recent, declining economic value of college-going may have on enrollments. They suggest that the poor employment success of recent graduates will cause enrollments to peak sooner than the early 1980's, the time foretold by demography. On the other hand, they believe that the decline in enrollments in the 1980's may not be as severe as predicted because the relative economic returns of education may actually improve during that period.

A variation on the economic viewpoint is reflected in several recent projections by the Bureau of Labor Statistics (1975) and the National Science Foundation (1975). These studies attempt to project the supply of Ph.D.'s in various fields with the demand that is likely to exist. In both projections, supply is projected to exceed demand in all major fields. The suggestion is made, however, that students will modify their patterns of behavior to narrow the gap.

Not all of the alternate projections are gloomy, however. Bowen (1974) suggests it is possible that higher education may remain a growth industry, especially if "lifelong learning" becomes a reality. If this occurs, he suggests it is quite possible that enrollments could increase by as much as two hundred percent by 2000. This projection is really more of a scenario of the future rather than a true projection.

A further note of uncertainty is added by demographic reports from California

which hypothesize that the fertility rate may be on the verge of bottoming out or increasing, after years of decline. The reason suggested is that many couples that merely deferred marriage and/or childbearing are now starting their families (Sklar and Berkov, 1975). While the direct effects of such a condition would not affect enrollments until around 1995, indirect effects, such as an increased demand for elementary and secondary schoolteachers, could influence postsecondary education much sooner.

Taken in total, this group of projections presents a variation of viewpoints such as has seldom confronted educators. Each projection that competes for attention and support uses demographic, economic, and student choice factors in different ways, while we know that all factors are somehow operative in determining enrollments. Moreover, the impartial observer realizes that factors such as the impact of economic conditions on education have been much simplified. In addition, while it is true that adult learning will ameliorate potential enrollment declines, it is certain that all institutions will not benefit equally from adult learning. Further, while some of these projections take into account the impact of changes in educational policy, others do not recognize that enrollments are not purely deterministic. Institutions still have some capability to shape their futures.

Complicating Factors

The plight of institutions attempting to utilize these projections is complicated by a variety of other factors. Regional variations, the differing prospects of various types of institutions, changes in student preference for academic disciplines, the timeliness of projections, and comparison with appropriate peers are collateral consideration that must be recognized. Every institution needs its own formula to deal with these issues. In the following discussion, examples from the University of Texas are used to illustrate the points.

Extreme regional variations make it difficult for institutions in some portions of the country to use projections based on national data. In the past, it has been possible in many cases for institutions in the South to use events in other portions of the country as "leading indicators" of conditions they could expect to experience in several years. However, many observers believe that states in the so-called "Sunbelt" may expect a future that is far different from that of the northeast and upper midwest (Sale, 1976). In Texas, for example, our prospects for continued demographic and economic growth make it difficult to convince many educators that a limited growth future should even be considered.

National projections have generally not disaggregated enrollments by type, although the Carnegie Commission's More Than Survival is to be complemented on disaggregating enrollments and some projections by types of students and by types of institutions. Even these efforts, however, do not assist the institution in dealing with a significant characteristic of enrollment changes in the past several years, namely, the changing student preference for different academic majors. Most institutions have witnessed an exodus of students from more traditional majors into "career-oriented" or professional disciplines. At Texas, for example, since the fall of 1972, we have experienced a 36.4 percent decrease in enrollments in the College of Humanities, a 27.0 percent decline in the College of Social and Behavioral Sciences (Texas does not have a single consolidated college of Arts and Sciences), and a 16.8 percent drop in the College of Education; in the same period, the Colleges of Pharmacy, Engineering, Nursing, Business Administration, and Communications have grown by 16.5, 28.4, 29.0, 41.4, and 43.9 percent respectively. Our largest major is now accounting; there are 2,350 undergraduate accountants roaming the Austin campus. Planning for these sorts of changes is equally important as planning for the total level of enrollment.

When national data and projections are used, there is some difficulty with their timeliness. The same is true, to a lesser degree, with statewide data. For a long time it took nearly two years between collection and publication of comprehensive national data. The National Center for Educational Statistics has taken great strides to publish preliminary data and prepublication releases that increase the usefulness of data. We have found that our coordinating board can also be persuaded to send us rough copy of statewide data that can be used before it is hopelessly out-of-date. Informal information exchange with peer institutions yields timely data, as well.

It is absolutely essential for institutions to narrow the field of comparison by selecting peer institutions and states. It is often necessary to select different peer groupings for comparison, depending on the enrollment or demographic/economic factors under scrutiny. Often these peer groupings are different from the groupings used in comparing academic standings and from the groupings suggested by state coordinating boards for comparing other statewide characteristics, such as relative support of education. In Texas, we have found it necessary for enrollment study purposes to consider peer groupings composed of all campuses of the University of Texas System, the three or four public universities withwhich we compete for Texas students, and peer research universities with which we compete for graduate students, respectively. In addition, we attempt to steal a march on the future by comparing Texas' characteristics with states with which we are currently comparable and with states with which we expect to be comparable in the future.

Overall Strategies for Projecting Enrollments Under Conditions of Uncertainty

The nature of fluctuation and the uncertainty in today's enrollments, the wide variety of alternative enrollment projections that face the analyst, and

the corollary factors that complicate the issue provide little comfort for those projecting enrollments. However, it is during times such as these, when fundamental changes are being affected in postsecondary education, that information about these new directions is most valuable. The following strategies make sense for these times.

First, enrollment studies under these conditions must place more emphasis on the broad-based monitoring of the host of factors that influence enrollments. In general, enrollment projections that have been accurate in the past have been those well-conceived enough or lucky enough to utilize past trends that continue into the future. Where possible, projections should continue to extrapolate existing trends. However, as part of the extensive monitoring of educational factors, these projections should actively question whether trends will continue. Where trends appear to be faltering, alternate scenarios should be suggested. However, these scenarios should provide the ingredient that was the greatest shortcoming of the futurist scenarios of the early seventies: they must make every effort to demonstrate how the future will derive from present conditions, and do so convincingly.

Second, if in their planning activities institutions and states should utilize modeling and analytical studies such as the projections of the Carnegie Commission, the alternate models of Dresch, or home-grown analytical techniques, they must not ascribe the illusion of certainty to the outcomes. In reality, these models are based on probabilistic assumptions about the future. Merely because the model produces "hard" outcomes must not obscure the fact that it is based on uncertain assumptions. Nor should a variety of outcomes of different techniques be taken as cause for ignoring all of them.

Third, the most valuable planning strategy under uncertainty is one that maintains institutional options and flexibility. Projections and enrollment studies should guide the institution in such a strategy. However, maintaining options does not mean the institution should avoid making all commitments or decisions. There is every indication that temporizing may carry a heavy penalty in the years ahead, but not as heavy a penalty as poor decisions and commitments based on outmoded assumptions about trends that no longer exist.

Finally, it is important to reinforce Kenneth Boulding's assertion that the world moves into the future as a result of decision, not plans (Boulding, 1974). I would add projections to the list. Projection studies must accommodate the needs of decision makers; elegant techniques alone are not sufficient. The mere identification of alternative futures or of levels of enrollment will not carry the necessary impact unless the proper decisions are made. An option-opening stance does not connote an absence of decisions. Enrollment studies and projections must directly fuel these decisions.

These strategies point toward enrollment studies having the following characteristics. First, enrollment studies under uncertainty should recognize the probabilistic nature of events and should provide ranges of outcomes. They should also recognize that the ultimate decisions that will be made will be judgmental, diffuse, and based on a wide range of factors. These studies should include the widespread monitoring of the factors that influence enrollments: demographic and economic factors, the characteristics of the student body, what types of students attend, and so forth. Where used, analytical and modeling techniques should be simplified and assumptions detailed. "Technical translation" may be necessary to make the assumptions of analytical techniques understandable to the layman decision maker. The actual projections that are

made should likewise be diffuse. They should be considered more as working budgets than as master plans. These projections--and the detailed monitoring of information--should be revised frequently and analyzed for accuracy and information value.

In truth, the greatest challenge in projecting under uncertainty lies not in merely knowing how to focus the future, but in focusing it. Taking these strategies, applying them creatively to different educational environments, and resolving our blurred future is a complicated and never ending process. That, indeed, is the point: the process of planning under uncertainty is equally important, if not more so, than the actual planning products. The foregoing strategies for projecting in an uncertain environment should be the guiding tenets of that projection and planning process.

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